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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAAKKO VIHRIALA

Appeal 2009-005984
Application 10/049,589
Technology Center 2400

Decided: December 22, 2009

Before ROBERT E. NAPPI, CARLA M. KRIVAK, and
KARL D. EASTHOM, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1-18. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellant's claimed invention is a device and method for performing synchronization of a mobile networked device, e.g., a mobile station, with a network control device of a present radio network region after a handover (Spec. 1:6-9; Spec. 5:8-11). When a mobile station moves from a first cell to a second cell, a handover is performed (Spec. 1:16-20; 7:32-35; Fig. 1). Handover includes disconnecting the mobile station from a base station in the first cell, such as a source radio network region, and connecting the mobile station to a base station in the second cell, i.e., a present radio network region (Spec. 1: 16-20; Spec. 5:11-19). After a handover, an actual propagation delay value between the mobile station and the new base station is unknown, but important for synchronization (Spec. 2:33- 3:1; Fig. 2). A start propagation delay value, e.g., a known past propagation delay value, is determined based on the detected source radio network region and the present radio network region (Spec. 5:8-19; Spec. 8:25-30). The start propagation delay value is used as the starting point to decrease time spent searching for the actual propagation delay value (Spec. 5:4-6, 17-19; Spec. 6: 9-13; Spec. 8:19-23, 25-30).

Independent claim 1, reproduced below, is representative of the subject matter on appeal.

> 1. A method comprising:
>
> performing synchronization of a mobile network device to a network control device of a present radio network region, further comprising:
>
> detecting a source radio network region from which a handover of said mobile network device to said present radio network region has been performed;

determining a start propagation delay value based on said detected source radio network region of said mobile station; and

searching an actual propagation delay value by using a search strategy based on said determined start propagation delay.

REFERENCES

Papasakellariou	US 6,275,483 B1	Aug. 14, 2001
Dahlman	US 6,526,039 B1	Feb. 25, 2003 (filed Feb. 2, 1999)

The Examiner rejected claims 1-6, 9-14, 17, and 18 under 35 U.S.C. § 103(a) based upon the teachings of Applicant's Admitted Prior Art (AAPA) and Dahlman.

The Examiner rejected claims 7, 8, 15, and 16 under 35 U.S.C. § 103(a) based upon the teachings of AAPA, Dahlman, and Papasakellariou.

Appellant contends an improved estimate of a Relative Time Difference (RTD) in Dahlman does not disclose or suggest searching an actual propagation delay value (Br. 8). Appellant also contends that maintaining a Relative Time Difference estimate table in Dahlman can not be seen to disclose or suggest start propagation delay values stored in a database (Br. 11). Appellant further contends that an improved RTD estimate in Dahlman can not be seen to disclose or suggest updating a database with a searched actual propagation delay value after performing a search (Br. 11).

ISSUE

Has Appellant established the Examiner erred in applying Dahlman's search strategy to AAPA's system for searching an actual propagation delay value based on a predetermined start propagation delay value?

FINDINGS OF FACT

1. The Examiner finds AAPA teaches determining a start propagation delay value (Ans. 3, 7, 8, and 10). Appellant did not contest the Examiner's findings.

2. The Examiner finds AAPA teaches searching for an actual propagation delay (Ans. 3, 7, 8, and 10). Appellant did not contest the Examiner's findings.

3. Dahlman teaches searching for a suitable neighboring target cell for a soft handoff (SOHO) based on a table of RTDs maintained by a current base station (col. 4, ll. 30-50). RTDs are estimated propagation delay values between base stations (col. 4, ll. 30-36). Consequently, when a mobile station searches for a target base station, the mobile station already has an estimate of the timing of the base station, i.e., an initial predetermined value from which to start the search (col. 6, ll. 25-28).

4. Dahlman teaches storing the estimated RTDs in an RTD estimate table that relates each RTD to a particular neighboring cell (col. 4, ll. 29-44). The accuracy of the estimated RTDs is improved by accounting for propagation delays between the mobile station and base stations used to estimate the RTDs (col. 4, ll. 51-56).

5. The RTD estimate table in Dahlman is maintained in a database at the base station controller (BSC) (col. 6, ll. 17-18; 43-48). When the

mobile station synchronizes with a target base station, the mobile station has an improved estimate of the RTD. The mobile station then reports this improved estimate back to the base station, which then updates the entry in the RTD estimate table (col. 6, ll. 31-36).

6. The RTD estimate table maintained in each BSC in Dahlman can be updated continuously from RTD reports received from the mobile stations (col. 6, ll. 14-18; 31-36).

7. Papasakellariou teaches a CDMA spread spectrum cellular communication system (col. 1, ll. 5-6). The communication system searches a search area by using a conventional approach such as a z-search or an expanded window search (col. 5, ll. 31-34).

PRINCIPLES OF LAW

The Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re* Oetiker, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Appellants have the burden on appeal to show reversible error by the Examiner in maintaining the rejection. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (citation omitted).

ANALYSIS

1. Rejection of Claims 1-6, 9-14, 17, and 18

The Examiner rejected claims 1-6, 9-14, 17, and 18 over AAPA and Dahlman (Ans. 3).

Claims 1, 4, 9, 12, 17, and 18

Appellant argues the rejection of claim 1, with claims 4, 9, 12, 17, and 18 standing or falling therewith (Br. 6). Appellant asserts that Dahlman does not teach or suggest searching an actual propagation delay value by using a search strategy based on a determined start propagation delay value (Br. 8).

The Examiner finds, and Appellant does not contest, AAPA teaches both determining a start propagation delay value (FF 1) and searching for an actual propagation delay value (FF 2; Ans. 10). The Examiner relies on Dahlman only to show that a search strategy as recited in claim 1 was known in the art at the time of Appellant's invention (Ans. 8). The Examiner maintains that it would have been obvious to apply Dahlman's search technique to AAPA's system to obtain the claimed invention (Ans. 8).

Dahlman teaches searching for a suitable neighboring target cell for a handoff based on a table of RTDs maintained by a current base station (FF 3). Dahlman teaches that the mobile station already has an initial predetermined value from which to start a search for a target base station. Thus, Dahlman teaches a search strategy for an RTD using an RTD (an initial predetermined value) as a starting point for a search for an actual value of an RTD. (FF 3) Dahlman's search strategy is therefore similar to that recited in claim 1. However, the search strategy used in Dahlman is for a different value than claimed and taught by AAPA, e.g., Dahlman searches for an RTD; AAPA and claim 1 recite searching for a propagation delay (FF 2, 3). Nonetheless, when the search strategy of Dahlman is applied to finding the actual propagation delay value in AAPA, the resulting combination teaches searching for an actual propagation delay value using a

predetermined initial value. Accordingly, Appellant has not shown the Examiner erred in applying Dahlman's search strategy to AAPA's system for searching an actual propagation delay value based on a predetermined start propagation delay value.

Claims 2 and 10

Appellant provides substantially the same arguments with respect to claims 2 and 10 as those set forth above with respect to claim 1 and merely contends that "maintaining the RTD estimate table can not be seen to disclose or suggest wherein start propagation delay values are stored in a database" (Br. 11).

As found above, Dahlman teaches storing RTDs (initial predetermined start values as the starting point for a search strategy) in an estimate table that relates each RTD to a particular neighboring cell (FF 3, 4). Dahlman also teaches preferably maintaining the RTD estimate table in a database (FF 5). Thus, storing RTDs in a database suggests to one of ordinary skill in the art that the start propagation delay values of AAPA could likewise be stored in a database as claimed (Ans. 13). Appellant has not provided sufficient evidence to the contrary. Therefore, Appellant has not shown the Examiner erred in rejecting claims 2 and 10 over AAPA and Dahlman.

Claims 3 and 11

Appellant asserts that Dahlman does not disclose or suggest updating a database with a searched actual propagation delay value after performing the search step (Br. 11).

The Examiner finds Dahlman teaches updating propagation delay estimates used to initiate a search with actual values determined by the

search. The Examiner also finds this would suggest to one of ordinary skill in the art that the database of Dahlman could be updated with the actual propagation delay values of AAPA as claimed. (Ans. 5, 13)

As discussed above, Dahlman teaches storing RTDs in an estimate table maintained in a database (FF 5). Dahlman also teaches that an improved estimate of the RTD is used to update the entry in the RTD estimate table (FF 5). Thus, Dahlman suggests to one of ordinary skill in the art updating estimates in the database of AAPA with an actual propagation delay value after performing a search.

Therefore, for the reasons set forth above, Appellant has not shown the Examiner erred by rejecting claims 3 and 11 over AAPA and Dahlman.

Claims 5, 6, 13, and 14

Appellant provides substantially the same arguments with respect to claims 5, 6, 13, and 14 as those set forth above with respect to claim 1 (Br. 11-12). As noted above, Appellant has not shown the Examiner erred by rejecting claim claims 5, 6, 13, and 14 over AAPA and Dahlman.

2. Rejection of Claims 7, 8, 15, and 16

The Examiner rejected claims 7, 8, 15, and 16 over AAPA, Dahlman, and Papasakellariou (Ans. 6, 14). Appellant provides similar arguments to those set forth above with respect to claim 1 and does not contest the Examiner's finding that Papasakellariou teaches that the specific expanding window search strategy required by claims 7 and 15 and the specific z-search strategy required by claims 8 and 16 are conventional search techniques (FF 7; Br. 13). Appellant has not contested the Examiner's finding that Papasakellariou teaches the claimed expanding window and z-searches recited in claims 7, 8, 15, and 16. Thus Appellant

has not shown the Examiner erred by rejecting claims 7, 8, 15, and 16 over AAPA, Dahlman, and Papasakellariou.

CONCLUSION

Appellant has not established the Examiner erred in applying Dahlman's search strategy to AAPA's system for searching an actual propagation delay value based on a predetermined start propagation delay value.

DECISION

The Examiner's decision rejecting claims 1-18 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KIS

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